



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,189	06/23/2006	Hongyuan Wang	1752-0183PUS1	8002
2292 7590 11/23/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
LSTVOYB, GREGORY				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
11/23/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/584,189

Applicant(s)

WANG ET AL.

Examiner

GREGORY LISTVOYB

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

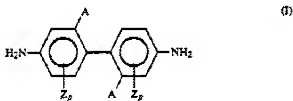
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Harris (US 5071997).

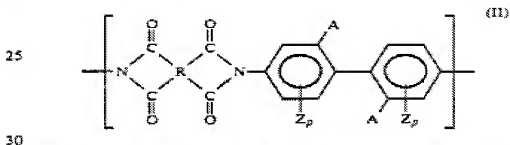
Harris teaches a polyimide or copolyimide based on a diamine of the following formula (1):



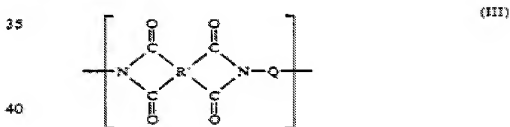
Where Z is Hydrogen and A is Alkoxy group (see Column 2, line 20).

Regarding claims 1-4, Harris teaches aromatic homo and copolyimides of the following structures:

The diamines of this invention can be used as polycondensation components for the manufacturing of novel homopolyimides and copolyimides which consist of 1-100 mole percent of the following repeat unit formula (II):



and of 0-99 mole percent of the following repeat unit of formula (III):



where R is a tetravalent organic radical, A, Z and _p are as previously described, R' is one or more tetravalent organic radical and Q is one or more divalent organic radical including diamines of formula (I).

Harris teaches that in case of copolyimide, Q can be represented by 4,4' diaminophenyl ether (see Example 7).

Regarding Claim 5, Harris teaches 3,3',4,4' benzophenone tetracarboxylic dianhydride (see Example 7).

Regarding Claims 2, 4 and 8 Harris teaches that benzidine and 4,4' diaminophenyl ether are presented at 1:1 mol ratio (see Example 7).

Note that Harris does not explicitly disclosed polyamic acid, based on above components. However, it is clear from the working Examples that polyimide formation takes place through the nominal step of polyamic acid formation with following imidization.

Harris does not teach alkoxyated benzidine in his working Examples.

According to MPEP 2123, disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments (see also *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971), *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) , *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Therefore, it would have been obvious to a person of ordinary skills in the art to use alkoxyated benzidine, since it clearly disclosed in the Harris reference and on eof ordinary skills would have expected a viable product to result from the use of any of the disclosed compounds.

Harris does not teach that alkoxy radical contains 3-6 carbons.

However, all aliphatic alkoxy radicals are homologs.

In accordance to MPEP 2144.09 the structural analogs are *prima facie* obvious in the absence of showing unexpected results.

Therefore, it would have been obvious to a person of ordinary skills in the art to use Alkoxy radicals containing 3-6 Carbons in Harris reference, since they are structural homologs to species disclosed by the reference.

Regarding Claim 6, since Harris teaches a polyimide analogous to one of the Application examined, all physical properties of both compounds expected to be equal.

Response to Arguments

Applicant's arguments filed 8/12/2009 have been fully considered but they are not persuasive.

Applicant submits that the "generic disclosure in Harris, coupled with the Harris specific disclosure of trifluoromethyl groups as embodiments of "A," would not lead persons of ordinary skill in the art to a hydrocarbon group having 3 to 6 carbon atoms".

This is incorrect. Harris explicitly teach " A" as being an alkoxy group (see Column 2, line 20).

Applicant submits Declaration under 37 CFR 1.132, signed by Dr Wang.

Dr. Wang states that he obtained polyimide, equal to one of Harris's polymer and found that the Applicant's polyimide possesses better peel strength and solvent resistance. Dr. Wang discloses a synthesis based on the following ingredients:

PMDA: pyromellitic dianhydride

BTMB: 2,2'-bis(trifluoromethyl)benzidine (for Harris's polymer)

m-NPOB: 2,2'-di-n-propyloxybenzidine (for Applicant's polymer)

m-PHOB: 2,2'-diphenyloxybenzidine (for Applicant's polymer)

DMAc: N,N-dimethylacetamide (solvent).

In other words, Dr. Wang demonstrates that phenoxy and alkoxy groups have an advantage over trifluoromethyl one. However, Harris explicitly discloses an alkoxy group as a substitute. Therefore, Dr. Wang's experiment has not commensurate with the scope of Harris's disclosure.

Dr. Wang concedes that alkoxy group is present in Harris's disclosure. "However, a large number of equally useful substituents other than the alkoxy groups are cited; such substituents include a vast number of groups such as substituted alkyl groups and substituted aryl groups and it is not easy to select alkoxy groups from them."

Examiner disagrees. A genus does not always anticipate a claim to a species within the genus. However, when the species is clearly named, the species claim is anticipated no matter how many other species are additionally named. *Ex parte A*, 17 USPQ2d 1716 (Bd. Pat. App. & Inter. 1990) See also MPEP 2131.02.

Dr. Wang further states that Harris does not specify the number of carbons in an alkoxy group.

However, all aliphatic alkoxy groups are structural isomers. The advantage of such groups, having 3-6 carbons compare to other alkoxy substituted polyimides has not been demonstrated in the Declaration.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY LISTVOYB whose telephone number is (571)272-6105. The examiner can normally be reached on 10am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James J. Seidleck/
Supervisory Patent Examiner, Art Unit 1796
GL